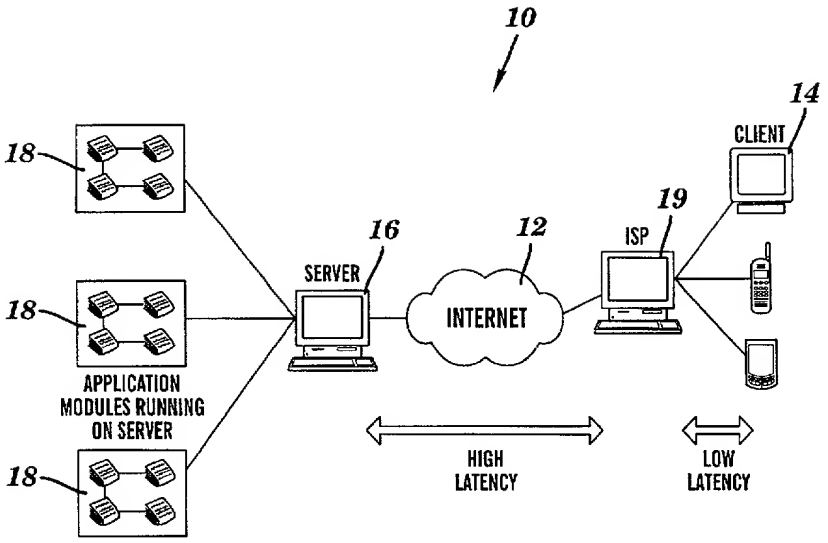


*FIG. 1*
***RELATED ART***

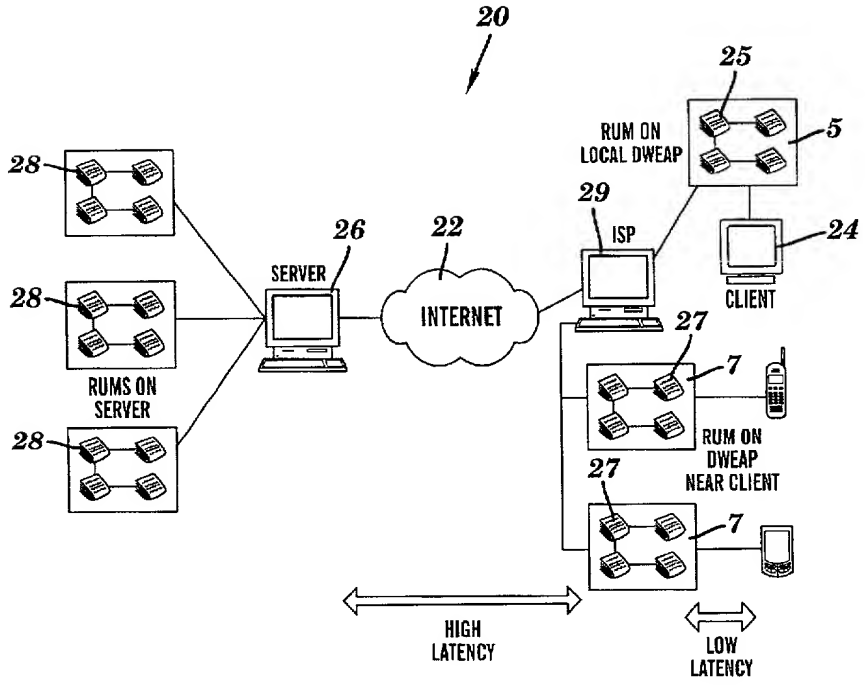
20
25
RUM ON
LOCAL DWEAP
5
28
29
ISP
26
22
24
28
SERVER
INTERNET
CLIENT
27
7
RUMS ON
SERVER
28
RUM ON
DWEAP
NEAR CLIENT
27
7
HIGH
LATENCY
LOW
LATENCY

*FIG. 2*

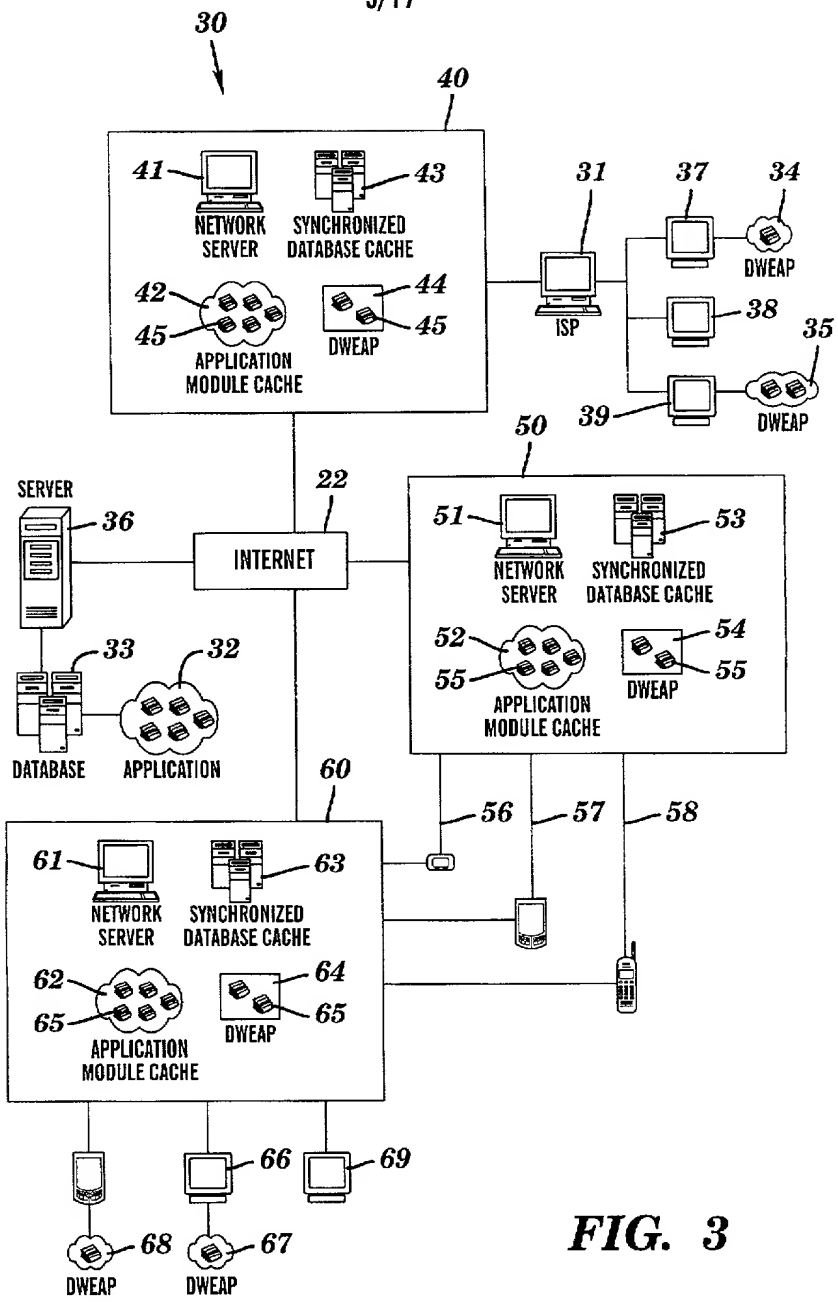
30
40
41
NETWORK SERVER
43
SYNCHRONIZED DATABASE CACHE
42
45
APPLICATION MODULE CACHE
44
45
DWEAP
31
ISP
37
34
DWEAP
38
35
39
DWEAP
50
22
SERVER
36
INTERNET
51
NETWORK SERVER
53
SYNCHRONIZED DATABASE CACHE
52
55
APPLICATION MODULE CACHE
54
55
DWEAP
33
32
DATABASE
APPLICATION
60
56
57
58
61
NETWORK SERVER
63
SYNCHRONIZED DATABASE CACHE
62
65
APPLICATION MODULE CACHE
64
65
DWEAP
66
69
68
67
DWEAP
DWEAP

*FIG. 3*

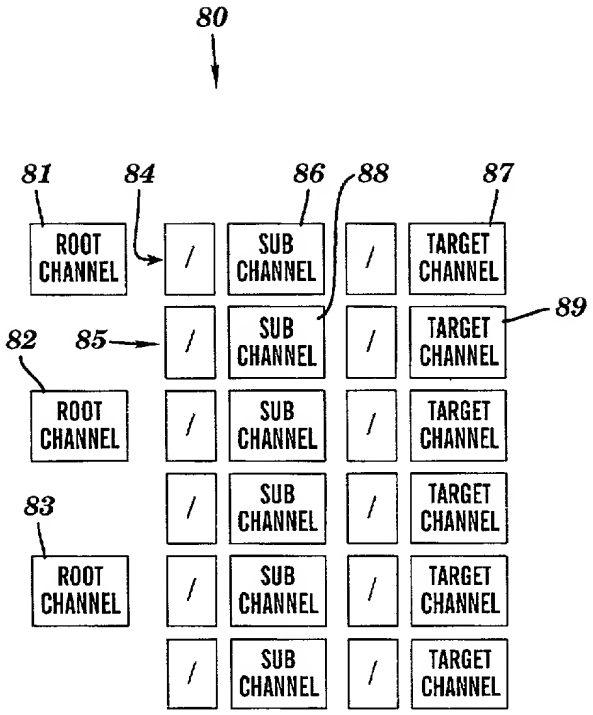
80
81
84
86
88
87
89
82
85
83
ROOT CHANNEL
SUB CHANNEL
TARGET CHANNEL
/

*FIG. 4*

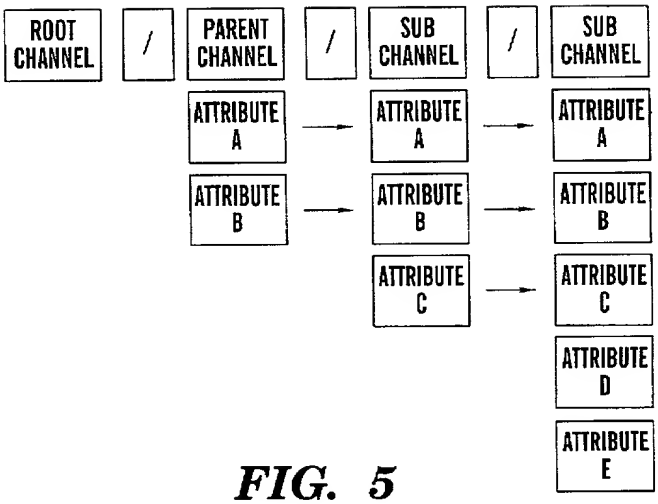
ROOT CHANNEL
/
PARENT CHANNEL
/
SUB CHANNEL
/
SUB CHANNEL
ATTRIBUTE A
ATTRIBUTE A
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE B
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E

*FIG. 5*

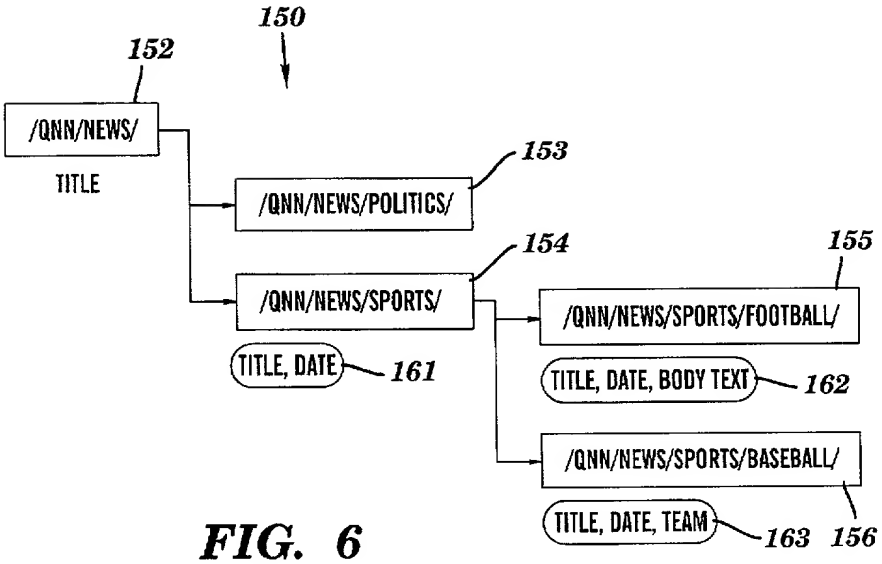
150
152
/QNN/NEWS/
TITLE
153
/QNN/NEWS/POLITICS/
154
155
/QNN/NEWS/SPORTS/
/QNN/NEWS/SPORTS/FOOTBALL/
TITLE, DATE
161
TITLE, DATE, BODY TEXT
162
/QNN/NEWS/SPORTS/BASEBALL/
TITLE, DATE, TEAM
163
156

*FIG. 6*

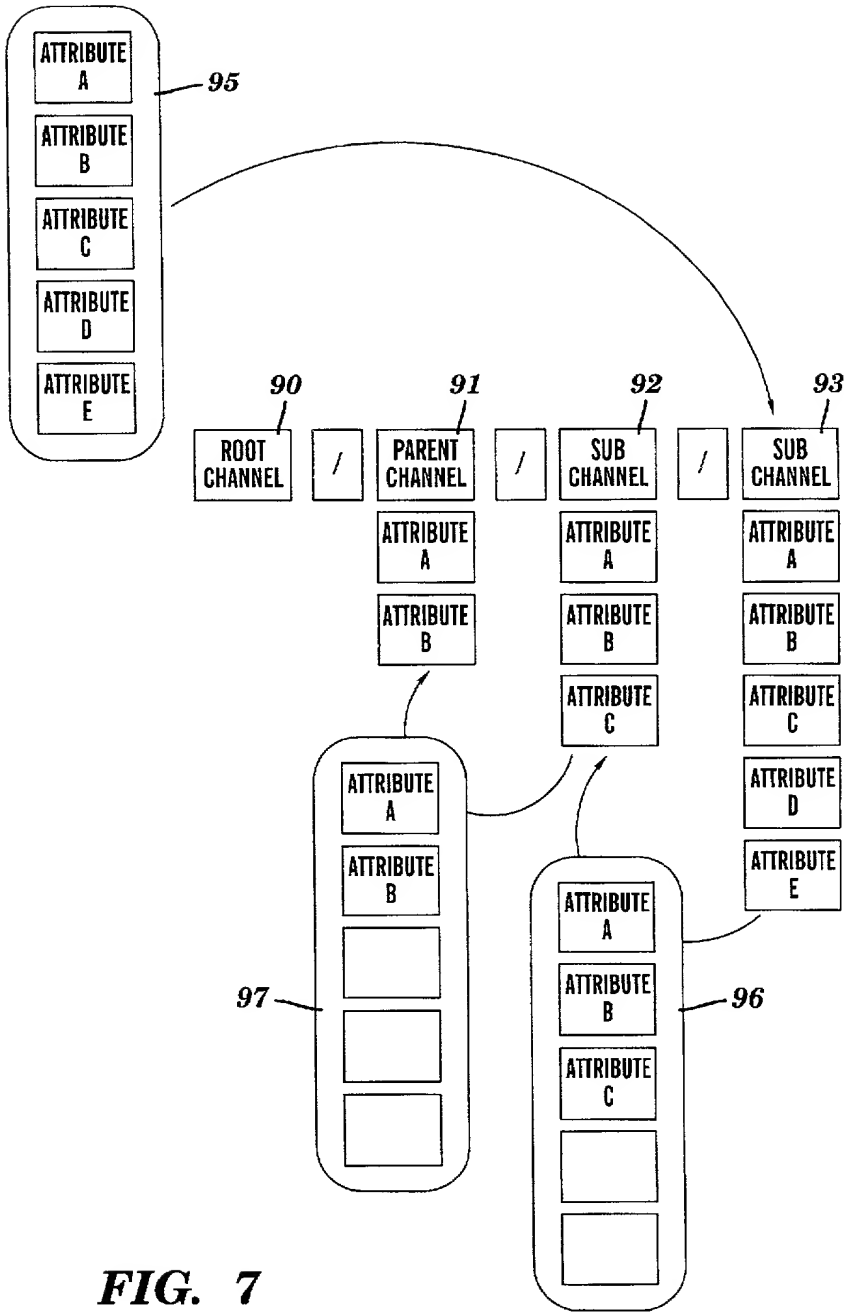
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E
95
90
91
92
93
ROOT CHANNEL
/
PARENT CHANNEL
/
SUB CHANNEL
/
SUB CHANNEL
ATTRIBUTE A
ATTRIBUTE B
ATTRIBUTE C
ATTRIBUTE D
ATTRIBUTE E
97
96

*FIG. 7*

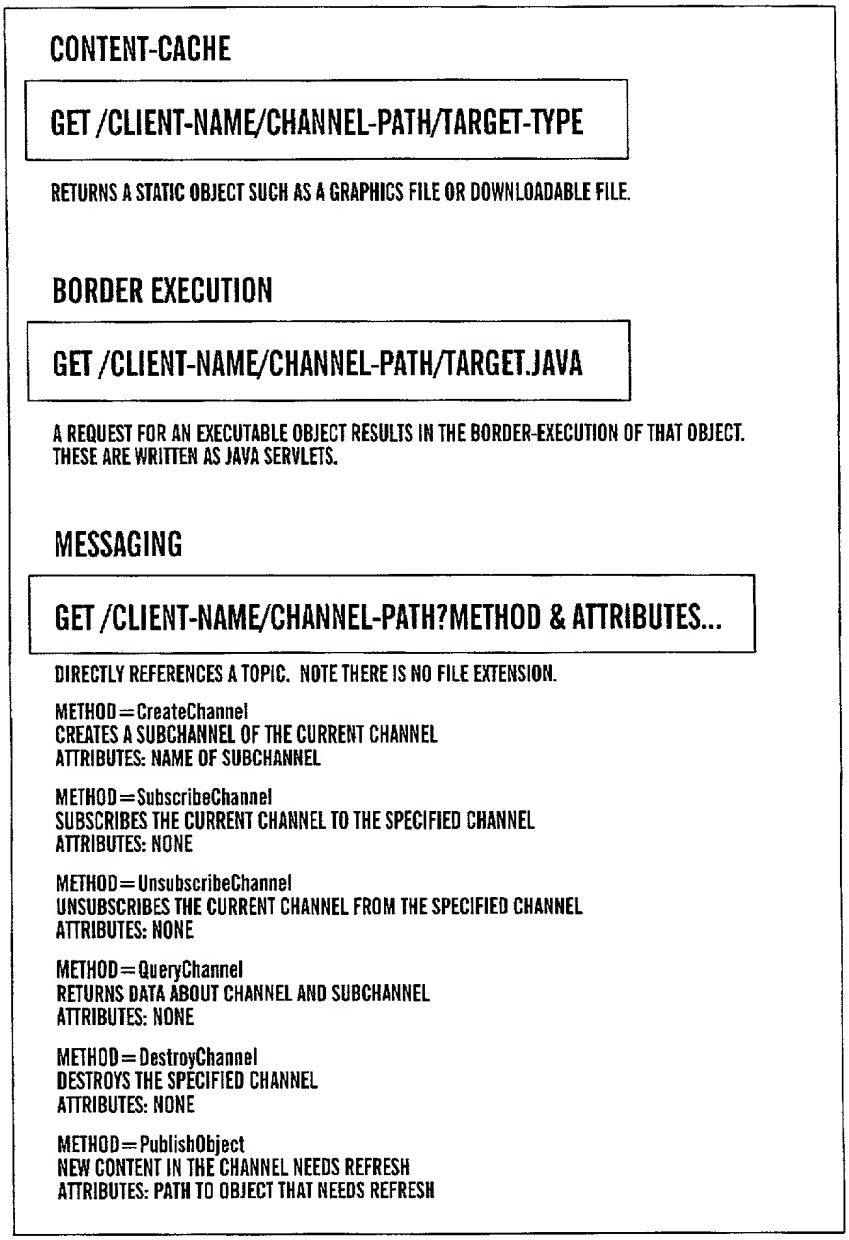
CONTENT-CACHE
GET /CLIENT-NAME/CHANNEL-PATH/TARGET-TYPE
RETURNS A STATIC OBJECT SUCH AS A GRAPHICS FILE OR DOWNLOADABLE FILE.
BORDER EXECUTION
GET /CLIENT-NAME/CHANNEL-PATH/TARGET.JAVA
A REQUEST FOR AN EXECUTABLE OBJECT RESULTS IN THE BORDER-EXECUTION OF THAT OBJECT. THESE ARE WRITTEN AS JAVA SERVLETS.
MESSAGING
GET /CLIENT-NAME/CHANNEL-PATH?METHOD & ATTRIBUTES...
DIRECTLY REFERENCES A TOPIC. NOTE THERE IS NO FILE EXTENSION.
METHOD=CreateChannel
CREATES A SUBCHANNEL OF THE CURRENT CHANNEL
ATTRIBUTES: NAME OF SUBCHANNEL
METHOD=SubscribeChannel
SUBSCRIBES THE CURRENT CHANNEL TO THE SPECIFIED CHANNEL
ATTRIBUTES: NONE
METHOD=UnsubscribeChannel
UNSUBSCRIBES THE CURRENT CHANNEL FROM THE SPECIFIED CHANNEL
ATTRIBUTES: NONE
METHOD=QueryChannel
RETURNS DATA ABOUT CHANNEL AND SUBCHANNEL
ATTRIBUTES: NONE
METHOD=DestroyChannel
DESTROYS THE SPECIFIED CHANNEL
ATTRIBUTES: NONE
METHOD=PublishObject
NEW CONTENT IN THE CHANNEL NEEDS REFRESH
ATTRIBUTES: PATH TO OBJECT THAT NEEDS REFRESH

*FIG. 8*

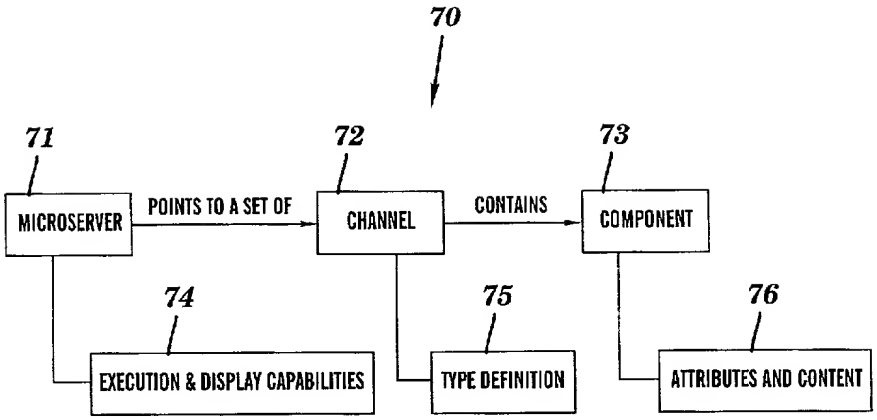
70
71
72
73
MICROSERVER
POINTS TO A SET OF
CHANNEL
CONTAINS
COMPONENT
74
75
76
EXECUTION & DISPLAY CAPABILITIES
TYPE DEFINITION
ATTRIBUTES AND CONTENT

*FIG. 9*

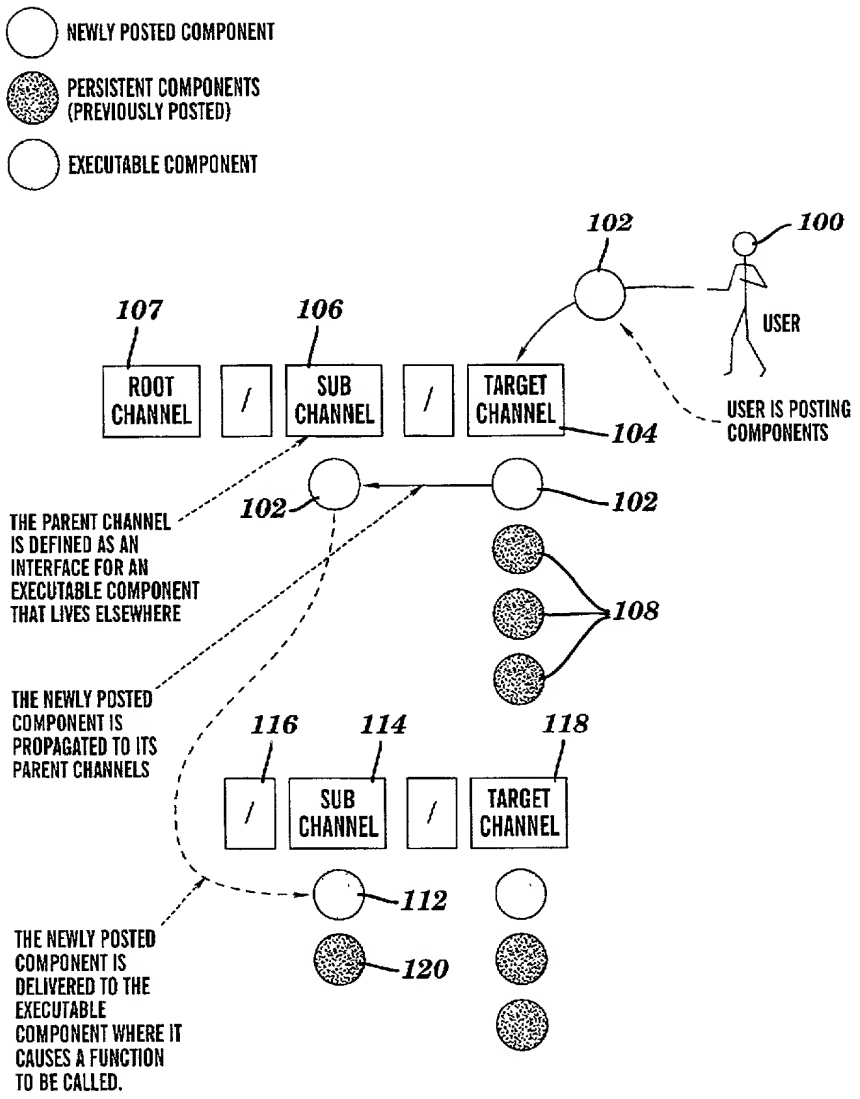
NEWLY POSTED COMPONENT
PERSISTENT COMPONENTS (PREVIOUSLY POSTED)
EXECUTABLE COMPONENT
102
100
USER
107
106
ROOT CHANNEL
SUB CHANNEL
TARGET CHANNEL
104
USER IS POSTING COMPONENTS
THE PARENT CHANNEL IS DEFINED AS AN INTERFACE FOR AN EXECUTABLE COMPONENT THAT LIVES ELSEWHERE
102
102
108
THE NEWLY POSTED COMPONENT IS PROPAGATED TO ITS PARENT CHANNELS
116
114
118
SUB CHANNEL
TARGET CHANNEL
112
120
THE NEWLY POSTED COMPONENT IS DELIVERED TO THE EXECUTABLE COMPONENT WHERE IT CAUSES A FUNCTION TO BE CALLED.

*FIG. 10*

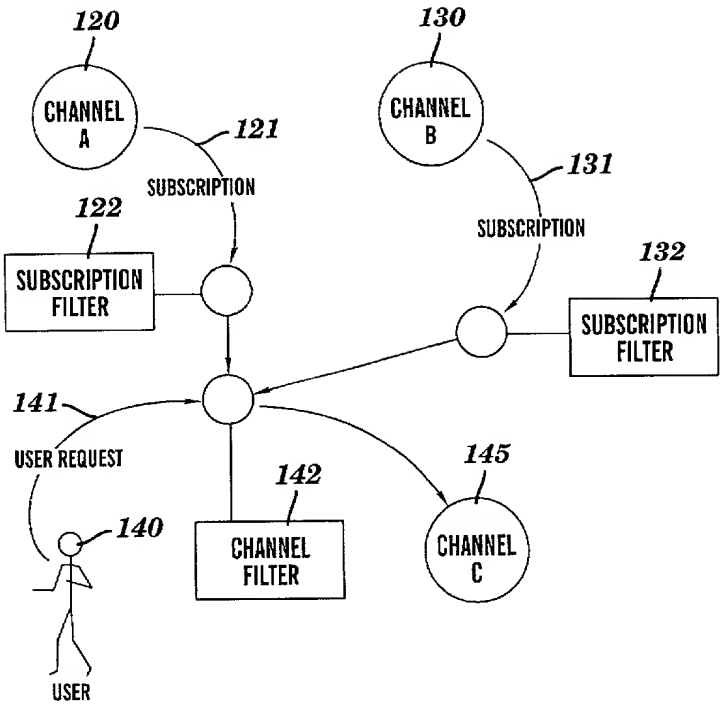
120
CHANNEL A
121
SUBSCRIPTION
122
SUBSCRIPTION FILTER
130
CHANNEL B
131
SUBSCRIPTION
132
SUBSCRIPTION FILTER
141
USER REQUEST
140
USER
142
CHANNEL FILTER
145
CHANNEL C

*FIG. 11*

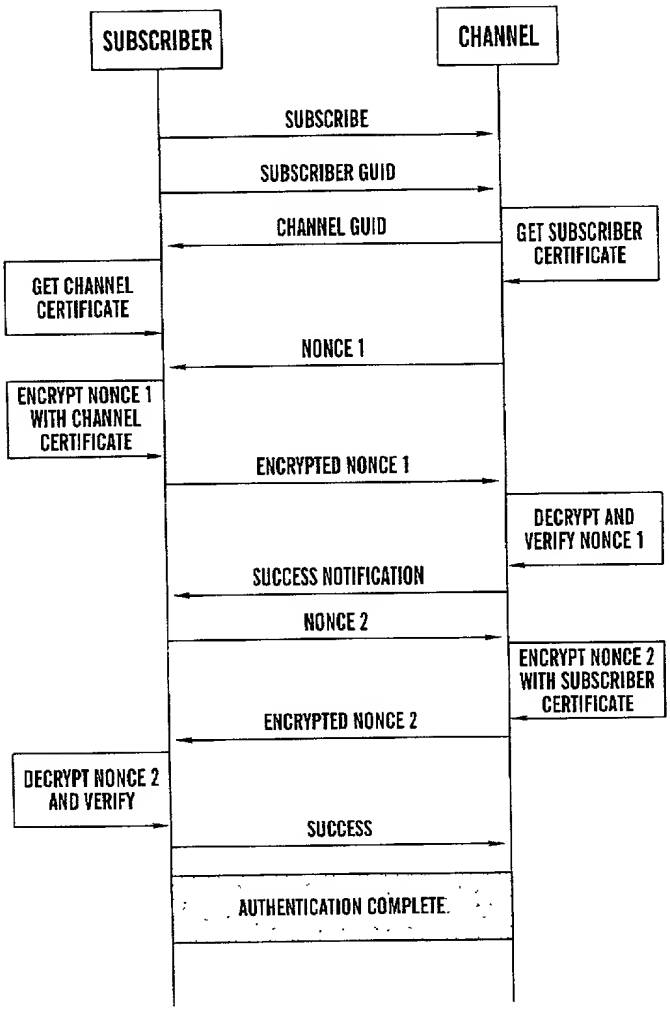
SUBSCRIBER
CHANNEL
SUBSCRIBE
SUBSCRIBER GUID
CHANNEL GUID
GET SUBSCRIBER CERTIFICATE
GET CHANNEL CERTIFICATE
NONCE 1
ENCRYPT NONCE 1 WITH CHANNEL CERTIFICATE
ENCRYPTED NONCE 1
DECRYPT AND VERIFY NONCE 1
SUCCESS NOTIFICATION
NONCE 2
ENCRYPT NONCE 2 WITH SUBSCRIBER CERTIFICATE
ENCRYPTED NONCE 2
DECRYPT NONCE 2 AND VERIFY
SUCCESS
AUTHENTICATION COMPLETE.

*FIG. 12*

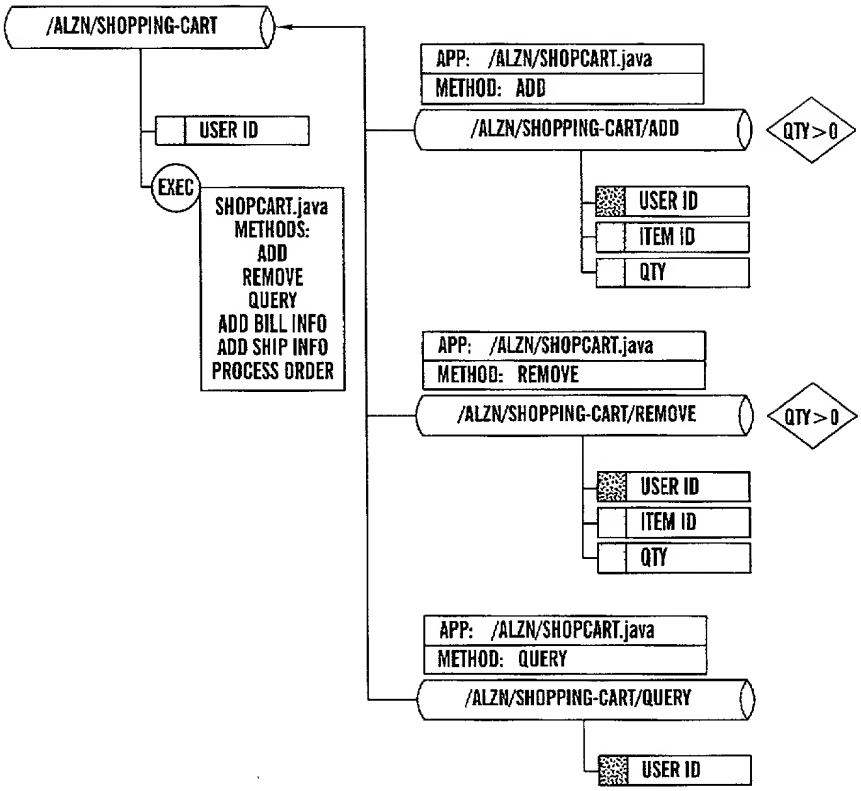
/ALZN/SHOPPING-CART
USER ID
EXEC
SHOPCART.java
METHODS:
ADD
REMOVE
QUERY
ADD BILL INFO
ADD SHIP INFO
PROCESS ORDER
APP: /ALZN/SHOPCART.java
METHOD: ADD
/ALZN/SHOPPING-CART/ADD
QTY>0
USER ID
ITEM ID
QTY
APP: /ALZN/SHOPCART.java
METHOD: REMOVE
/ALZN/SHOPPING-CART/REMOVE
QTY>0
USER ID
ITEM ID
QTY
APP: /ALZN/SHOPCART.java
METHOD: QUERY
/ALZN/SHOPPING-CART/QUERY
USER ID

*FIG. 13*

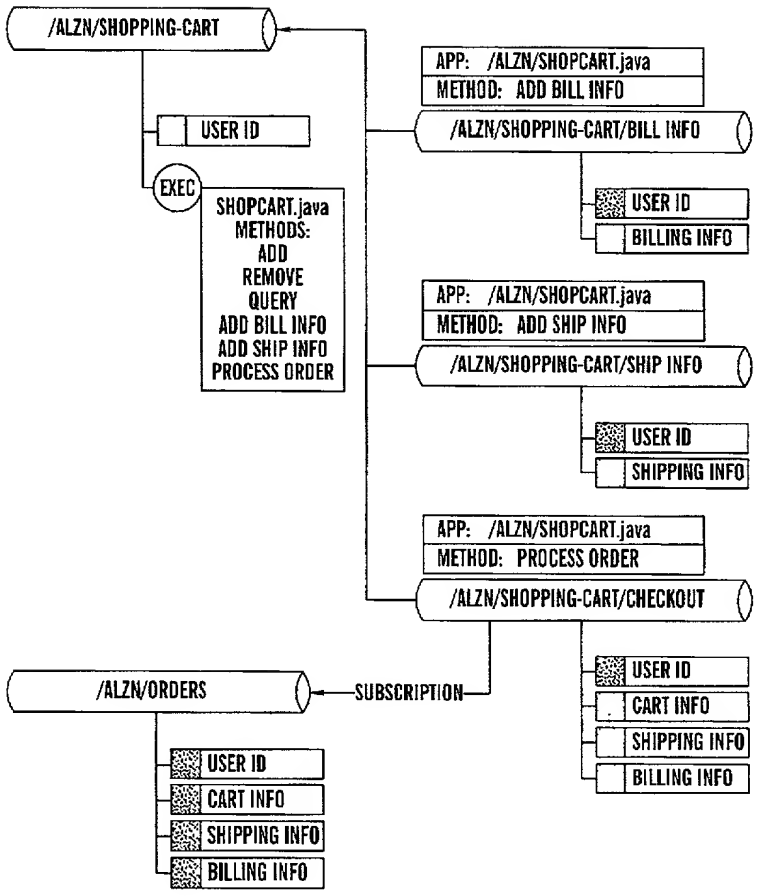
/ALZN/SHOPPING-CART
USER ID
EXEC
SHOPCART.java
METHODS:
ADD
REMOVE
QUERY
ADD BILL INFO
ADD SHIP INFO
PROCESS ORDER
APP: /ALZN/SHOPCART.java
METHOD: ADD BILL INFO
/ALZN/SHOPPING-CART/BILL INFO
USER ID
BILLING INFO
APP: /ALZN/SHOPCART.java
METHOD: ADD SHIP INFO
/ALZN/SHOPPING-CART/SHIP INFO
USER ID
SHIPPING INFO
APP: /ALZN/SHOPCART.java
METHOD: PROCESS ORDER
/ALZN/SHOPPING-CART/CHECKOUT
USER ID
CART INFO
SHIPPING INFO
BILLING INFO
SUBSCRIPTION
/ALZN/ORDERS
USER ID
CART INFO
SHIPPING INFO
BILLING INFO

*FIG. 14*

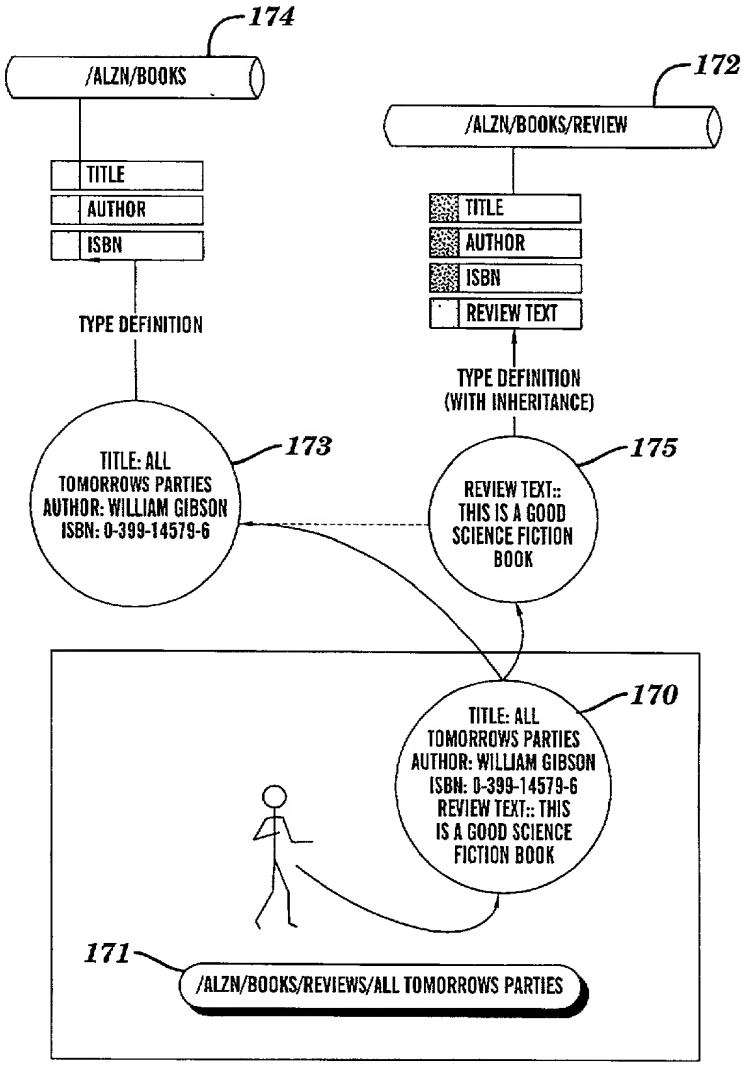
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
TYPE DEFINITION
(WITH INHERITANCE)
173
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
175
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
170
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT:: THIS
IS A GOOD SCIENCE
FICTION BOOK
171
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES

*FIG. 15*

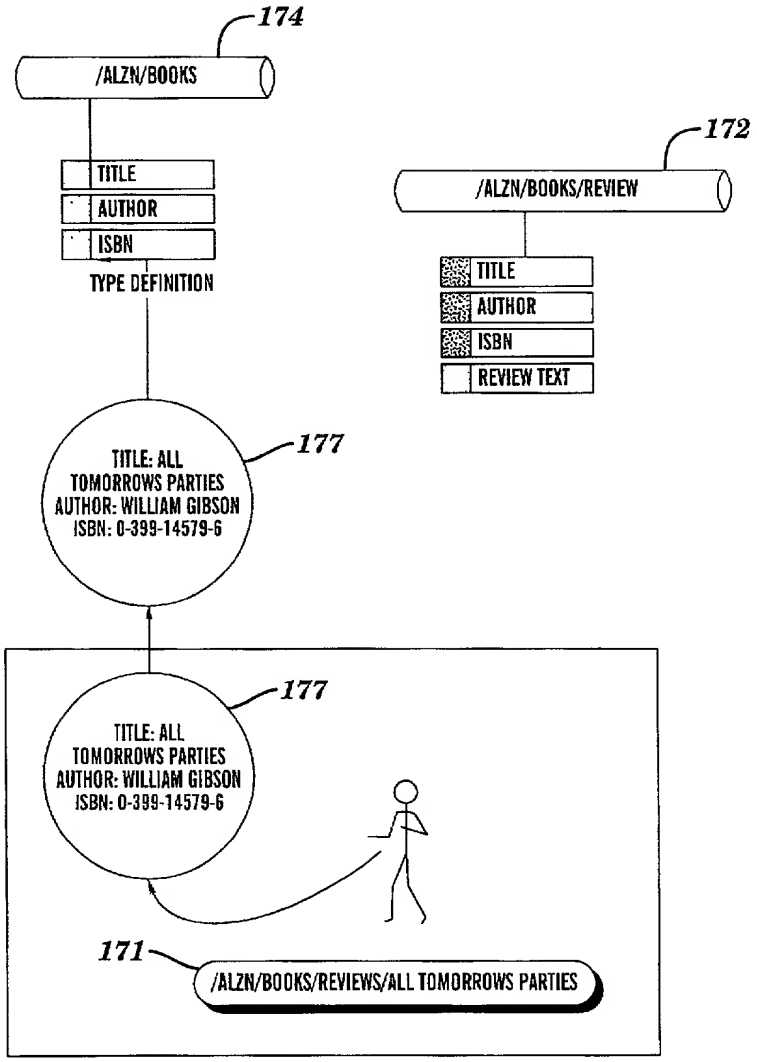
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
177
TITLE: ALL TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
177
TITLE: ALL TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
171
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES

*FIG. 16*

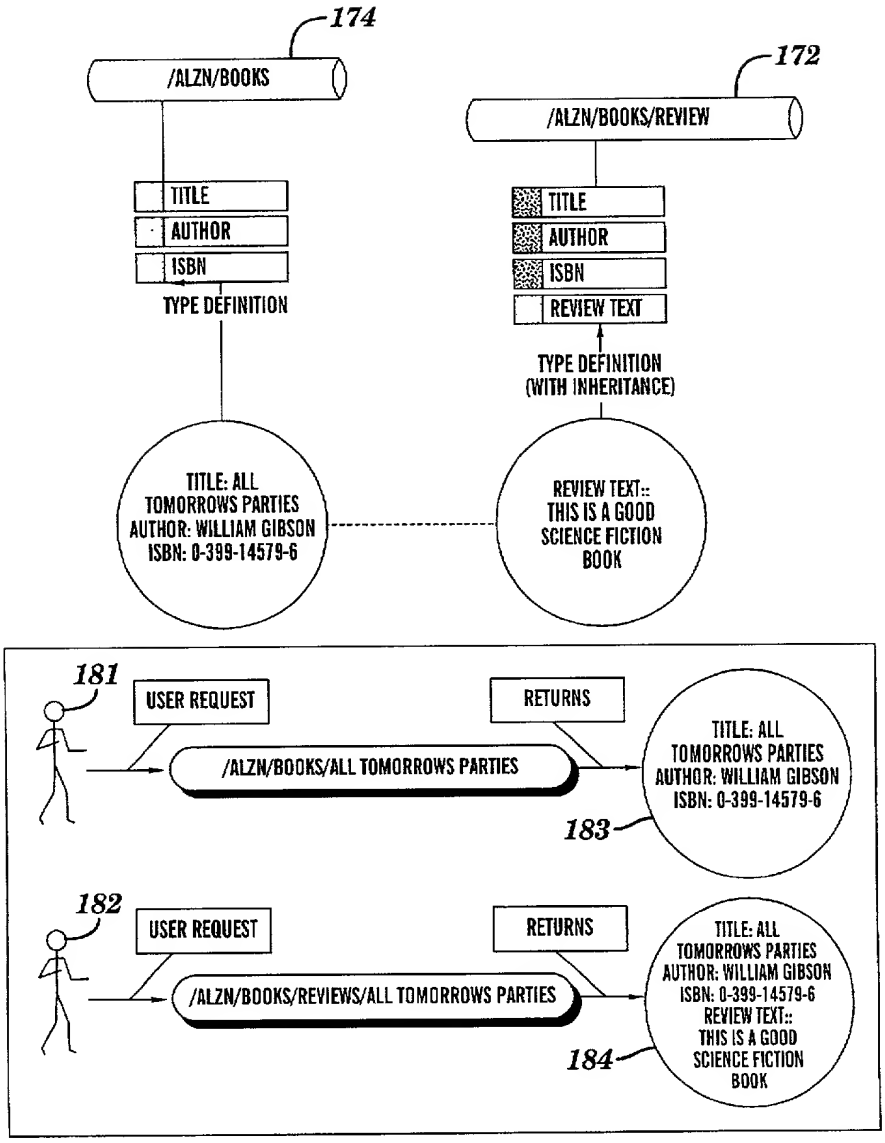
174
/ALZN/BOOKS
TITLE
AUTHOR
ISBN
TYPE DEFINITION
172
/ALZN/BOOKS/REVIEW
TITLE
AUTHOR
ISBN
REVIEW TEXT
TYPE DEFINITION
(WITH INHERITANCE)
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
181
USER REQUEST
RETURNS
/ALZN/BOOKS/ALL TOMORROWS PARTIES
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
183
182
USER REQUEST
RETURNS
/ALZN/BOOKS/REVIEWS/ALL TOMORROWS PARTIES
TITLE: ALL
TOMORROWS PARTIES
AUTHOR: WILLIAM GIBSON
ISBN: 0-399-14579-6
REVIEW TEXT::
THIS IS A GOOD
SCIENCE FICTION
BOOK
184

*FIG. 17*

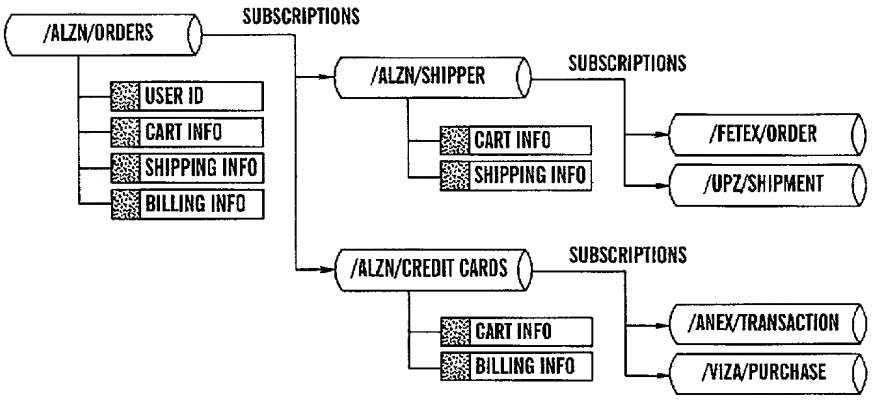
/ALZN/ORDERS
SUBSCRIPTIONS
USER ID
CART INFO
SHIPPING INFO
BILLING INFO
/ALZN/SHIPPER
SUBSCRIPTIONS
CART INFO
SHIPPING INFO
/FETEX/ORDER
/UPZ/SHIPMENT
/ALZN/CREDIT CARDS
SUBSCRIPTIONS
CART INFO
BILLING INFO
/ANEX/TRANSACTION
/VIZA/PURCHASE

*FIG. 18*